



## METHODS FOR CHLORINATING PRIVATE WATER SUPPLIES

1. The well cover should be removed so that fluid can be dumped or poured into the well, if possible the pumping system should remain functional. Caution must be taken to avoid electrical shock.
2. The volume of water contained in the system should be estimated so that the appropriate amount of chlorine bleach can be added. The volume of water in the well, piping, pressure tank, and water heater must be totaled.
  - a. The volume of the well should be estimated by subtracting the depth to the water inside the well from the total depth of the well. This will tell you how many feet of water are in the well. The attached chart shows how many gallons of water per foot are contained in each different size (diameter) wells.
  - b. The volume of the water heater and the pressure tank (if used) should be readily available.
  - c. The piping from the well to the point of use can be estimated at between 20 and 100 gallons depending on the length and size of piping to the house and the number of sinks, toilets, showers or other dispensers. If the well is a long distance from the house (over 200 ft.) Some additional volume should be added.
  - d. Total the volume of water contained in the entire system.
    1. The amount of water contained in the well \_\_\_\_\_
    2. Capacity of the water heater \_\_\_\_\_  
Capacity of the pressure tank \_\_\_\_\_
    3. Estimated volume contained in the piping \_\_\_\_\_
    4. Total: Add the four numbers above to obtain the  
total volume of water in the system. \_\_\_\_\_

One ounce of chlorine bleach should be added for every 2 gallons of water in the system. More chlorine may be required for heavy concentrations of bacteria to insure that the disinfection of the system is complete. In most cases  $\frac{1}{2}$  to 1 gallon of chlorine laundry bleach is an ample amount to obtain complete disinfection of the system even with heavy bacteria concentrations. The chlorine bleach should be diluted before it is added to the well to minimize any corrosion of metal casing or pump parts from concentrated chlorine.

3. Obtain a tank or enough clean buckets or containers which can be filled with chlorinated water to equal at least the volume of water contained in the well. The chlorine solution can be mixed up by adding 1 oz. of chlorine bleach to every 2 gallons of water in the containers. These containers should be placed near the well before the chlorine solution is mixed since they will be poured into the well once step 4 has been completed.

4. Add the required amount of chlorine to the well. Run the hose from the nearest facet to the well and circulate the chlorine mixture through the hose and back into the well. By circulating the water in the well an even mixture of chlorine solution can be obtained. While mixing the chlorine solution with the hose the sides of the casing and the drop pipe for the pump can be washed with the chlorinated mixture.

A strong odor of chlorine smell should be present after the mixing process has been completed. If the chlorine smell is not strong, more chlorine should be added.

5. Pour the mixture of chlorinated water into the well and allow the well to set for 2 or more hours before proceeding with step 6.
6. Run water from each faucet in the distribution system until a chlorine odor is present in the water. This should be done for hot and cold water. The hot water should take longer than the cold because the hot water tank holds a large volume of water. Chlorinated water should be allowed to enter all the lines in the distribution system including lines to bathtubs, showers, toilets and outside hydrants so complete disinfection can be achieved. Carbon filters should be removed or bypassed. The air pressure should be released from the pressure tank (except those with a permanent air cushion) so that the entire tank may be filled with chlorinated water.

Caution: Some pressure tanks may be damaged by strong chlorine solutions. The manufacturer should be contacted to provide needed information about disinfection of the pressure tank.

It may be necessary to repeat steps 4 and 5 if the chlorine smell reaching the facets is weak. The chlorinated water should be allowed to remain in the well and piping for 12 to 24 hours if possible.

The chlorinated water contained in the system should be pumped to waste when the allotted time has passed. The water having a strong chlorine smell should not be discharged to a septic tank as it may kill the needed microorganisms in the septic system. This water should be discharged onto a driveway or area where damage will not be done to vegetation or other property. The chlorinated water contained in the plumbing system should be discharged until the chlorine odor is absent from all water sources. A small amount of chlorinated water contained in the plumbing of the house should not affect the septic tank. If bacteria problems persist, the chlorination process may need to be repeated.

After the well has been chlorinated, the well must be sealed to prevent surface water, small animals and insects from entering the well. A screened vent should be provided in the casing or well seal so air may enter the well but water and insects cannot.

Some wells are constructed so that it is not possible to install a positive well seal such as a dug well. These wells can be reconstructed and cased or a continuous chlorination system can be installed which will kill the unwanted bacteria.

If after reading this publication you are unsure of this procedure for chlorination, you may contact the Bureau of Water within the Department of Health and Environment located in Topeka (785) 296-5522 or one of the six district offices at the locations shown below.

|            |                |
|------------|----------------|
| Dodge City | (620) 225-0596 |
| Wichita    | (316) 337-6020 |
| Chanute    | (620) 431-2390 |
| Lawrence   | (785) 842-4600 |
| Salina     | (785) 827-9639 |
| Hays       | (785) 625-5664 |

| <b><u>Pipe or Well<br/>Diameter<br/>(Inches)</u></b> | <b><u>Gallons of<br/>Water Per Foot<br/>of Length</u></b> |
|--|---|
| ½  | .010  |
| ¾  | .023  |
| 1  | .041  |
| 1 ¼  | .067  |
| 1 ½  | .092  |
| 2  | .163  |
| 2 ½  | .255  |
| 3  | .37   |
| 3 ½  | .50   |
| 4  | .65   |
| 5  | 1.02  |
| 6  | 1.50  |
| 8  | 2.60  |
| 10   | 4.08  |
| 12   | 5.87  |
| 14   | 8.00  |
| 16   | 10.44   |
| 18   | 13.21   |
| 24   | 23.50   |
| 30   | 63.70   |